

DR. WILLIAM HOVANITZ, 1915 - 1977

RUDOLF H. T. MATTONI

*Lepidoptera Research Foundation
c/o Santa Barbara Museum of Natural History
2559 Puesta del Sol Road, Santa Barbara, California 93105*

Bill Hovanitz died suddenly of coronary failure early Wednesday morning, September 14, 1977. He left us quickly, without pain, and quite prematurely. He left many of us with a large sense of loss, which to me was deeply personal as well as scientific. To those who respected his remarkable legacy of work on butterflies, there is a profound sadness that we will never see Bill's interpretation of a large body of data which he was just beginning to organize for publication. A vigorous, involved, intense, efficient, and brilliant individual has left a scene enriched by his all-too-brief appearance upon it.

The life of the man was dialectic rather than following a linear pattern of defined milestones within our system to which most humans become committed. Although Bill's major goal and direction from an early age was understanding the patterns of variation and distribution of butterflies, his curiosity led him to investigate diverse scientific subjects. These interests were superimposed with exigencies of playing the academic game through several institutions, a close family commitment, and his successful ventures into business.

Bill was born in Chicago on November 6, 1915, and was brought to the San Francisco Bay Area of California in 1918, where his interest in nature, especially butterflies, started. To augment family income, as a high school student he was a delivery boy for a San Francisco drug store. While making deliveries about the city he took time to collect specimens, including those used in his early *Plebejus* studies and the now extinct *Glaucopsyche xerces*, on the side. He entered the University of California, Berkeley, in 1934, graduating with a B.S. in Entomology in 1938. Accepted to the graduate program at the California Institute of Technology under Nobel-Laureate Thomas Hunt Morgan, he received his Ph.D. in Genetics in 1943. Morgan having died during Bill's graduate career, he fin-

ished under A. H. Sturtevant. Discordance with Sturtevant flavored his subsequent academic pursuits and substantially contributed to the diverse pathways followed. He spent 1942-1945 working for the National Research Council in South America, Michigan and Florida. He then studied with Lee Dice at the Laboratory of Vertebrate Zoology of the University of Michigan, going on to the faculties of Wayne University (Detroit) and University of San Francisco. At the latter, he served as Associate Editor of the *Wasmann Journal of Biology*. He taught summer session at the University of California, Santa Barbara in 1949, where he met and married Barbara. He returned to Cal Tech in 1955, also spending time at UCLA. He finally settled as Professor of Biology at the California State University at Los Angeles in 1956, and resigned from the faculty in 1975. In early 1977 the Hovanitzes moved to Santa Barbara where they planned to build a home and for Bill to devote his full energies to research.

Although Bill's great interest lay in describing and understanding the remarkable patterns of variation within and between populations over distance and time, reflected in the major body of his work, he proposed only four taxa (listed below). His overall philosophy on taxonomy was well expressed in his 1943 paper on *Argynnis callippe* in California. The statement below, taken from that paper, follows a listing of twelve available named entities. Bill then proceeded to list the four major subspecies he recognized and went on to offer a more detailed taxonomy of 9 or 10 subspecies names. After implying that a researcher may choose between these taxonomic approaches as a matter of taste, Bill said:

Some systematists may feel it desirable to extend further the analysis of the variations by applying names to even more restricted local populations. The author does not think this necessary or desirable, but does consider it of importance that records of variations and distribution be published. The author believes the important part to be the variation and the biological significance of the variation, and this can be studied in any number of ways. For practical purposes of identification in a collection it is desirable that local populations be given names, but variation considered "unnamable" is often as important as, or more important than the latter and should receive its proper place in publications.

In his 1940 paper on an explanation of color variation in *Oeneis chryxus* reprinted in this supplement, the determinants

of adaptedness of the subspecies *stanislaus* and *ivallda* are discussed in detail. Thus his earlier description of *stanislaus* (1937) is given significance. The paper on *Plebejus icariodes* (1937), written while a sophomore in college, described the subspecies *missionensis* in terms of its relationship to a Rassenkreis. We see in Bill's early growth as a biologist a view to which we should all be attentive: the importance of interpretation of the significance which underlies the phenomena we perceive, rather than the mere description of the physical manifestations of these phenomena.

In the historical context, Bill produced several outstanding contributions. As a minor note, in his first paper written in 1936 he deplored overzealous collecting and anticipated government protection of endangered species. The paper "Parallel Ecogenotypical Color Variation in Butterflies", reprinted herein, was particularly noteworthy in attempting to demonstrate the existence of complex selective forces of the environment in producing the described color patterns in numerous butterfly species through the diverse regimes of California. This line of work was later beautifully expanded by using examples of *Colias* female dimorphs on a continental scale (1950).

He studied the operation of the complex, often indirect, modes of selection on gene frequency and the partitioning of environmental effects on variation in several taxa, including *Euphydryas chalcedona* (1943, 1952) and *Colias* (1944, 1945). In another classic paper (1948), differences in diurnal activity of orange and white females of *C. eurytheme* were documented in detail and explained in terms of adaptation to diurnally cyclic environmental factors.

Bill was one of the first Lepidopterists to recognize hybridization as a source of variability in butterflies. His first works (1943-1944) on the subject were directed to understanding why hybridization does not swamp the identity of interbreeding species such as *C. eurytheme* and *C. philodice*. His later studies turned to the more significant issue of recognizing hybridization as a major source of variability in populations (1949). He also recognized the concept that hybridization would produce populations adapted to "hybridized" habitats. Thus intermediate hybrid populations would not be selected against in ecological situations intermediate to the environmental modes of the "species" population (1953). A culmination of this work was recognition of *C. boothi* as a hybrid of *C. nastes* and *C. hecla* (1963).

Zoogeography was another aspect of Lepidoptera which fas-

minated Bill. He synthesized a large amount of data into the first comprehensive review of the subject in 1958, describing the major features of latitudinal and altitudinal distribution of the New World butterflies, except the HesperIIDae.

His most recent published area of work was on food plant preferences, summarized in 1969. The bulk of the research was conducted with graduate student Vincent C.S. Chang and was published in a series of papers between 1962 and 1965 in this journal. Numerous relationships of *Pieris rapae* and *P. protodice* larval food choices and female ovipositional responses on several species of cruciferous food plant were tested. The results are important to all workers concerned with this basic aspect of co-evolution.

In addition to work on Lepidoptera, he became quite curious about chromosome ultrastructure and was a pioneer in the attempt to describe such structures through use of the electric microscope in the mid-1940's. Although the techniques were crude by today's standards and conclusions consequently partially questionable, the approach was a decade ahead of its time (1947, 1953, 1956, 1957). Research undertaken for the National Research Council during World War II provided comparative information on adapted responses of mosquitoes with regard to multiple physiological and genetic characters, in part emphasizing parallelism among diverse species (1953, 1957, *et al.*). This work was applied to malaria control. Another fruitful research direction was into the mechanism of insect gall formation in plants. In this work Bill, now the biochemist, and co-workers attempted to isolate the inductive chemicals from insects (1962) and produced a popular review along the way (1959). The gall induction system was viewed as a significant model of certain tumors. In collaboration with Sewall Wright and Dobzhansky (1942) he published a classic study on population structure based on frequency and allelism of lethal genes in *Drosophila pseudoobscura*. Both men had a positive impact on Bill's emphasis on population genetics.

Last but not least, Bill authored a book on general genetics: *Textbook of Genetics* (1953). Designed for beginning classes in Genetics, the emphasis was on population genetics and evolution. The value Bill placed on open and free inquiry is summed in the dedication of his book:

To the unknown student or students who may be aroused by the unanswered questions herein infused and who may seek out their answers by experiment and synthesis unhampered by transliteral or political expediency.

As a maker of small talk, Bill was a failure. His apparent aloofness and unassuming way to some people was a gentle expression of his impatience with wasteful decorum, pointless conversation, and trivial deeds. I can't help but feel that if Bill were looking over my shoulder now he would be chuckling over my writing his obituary as a rather frivolous undertaking. He was in reality a very warm, positive, and encouraging, yet highly independent individual. His excellence in business matters was a side not known to many. Basically, this business motivation developed from an understanding we both shared, that in the contemporary socio-economic system, personal wealth is the vehicle to creative freedom — clearly not to be confused with fulfillment of the American dream as promoted by Madison Avenue. Business success was a positive reaction to scorn from the academic science establishment for studying butterflies.

The establishment of the *Journal of Research on the Lepidoptera* was motivated by the desire for a publication capable of handling papers where full data could be set forth, plus ample space for illustrations with availability of color plates at no charge to authors. Bill had the conviction of also minimizing editing manuscripts, and controversial papers were encouraged. With emphasis on biology rather than strict taxonomy, the periodic illustration of habitats were promoted. Although possible competitiveness with the *Lepidopterist's Society Journal* concerned several workers, the *JRL* actually became a complement. A clear niche developed for both to the lasting benefit of all Lepidopterists. The Lepidoptera Research Foundation was incorporated in 1964 as a non-profit entity to publish the Journal and otherwise promote research.

Relationship with his family, wife Barbara and children Eric, Christine and Karl, was close. The Hovanitzes as a group were open, and even today with close friends and relatives represent a true extended family. No small part of immediate family involvement was with the Journal, with Barbara managing financial details, Eric's wife Karen as Assistant Editor in charge of technical matters, and the whole family stapling reprints, collating, addressing, and stuffing mailers. Family effort insured the success it has had, and will continue to be more than supportive.

Bill Hovanitz's lasting monument is in large part this Journal. We trust we are able to nurture the Journal as a facet of the most elusive testament of all — the human intellect.

TAXA PROPOSED BY WILLIAM HOVANITZ

Plebejus icarioides missionensis
Pan-Pac. Ent. 13: 187, 1937.

Oeneis chryxus stanislaus
Ent. News 48: 228, 1937.

Colias philodice vitabunda
Amer. Mus. Novit. 1240: 2, 1943
(as *C. chrysotheme vitabunda*).

Colias nastes thula
Wasmann J. Biol. 13: 2, 1955.